This article, FR83, is divided into three files.

This is File C: Changes to federal regulations, Appendices to part 268 through end of article.

NOTE: This article contained several typographical errors when it was published in the <u>Federal Register</u>. Some of these errors in Table CCWE (268.41), Table 2 (268.42), and Table CCW (268.43) have been corrected in this electronic version of the article, based on information from EPA State and Regional Programs Branch.

13. Appendix IV to part 268 is revised to read as follows:

Appendix IV-Organometallic Lab Packs

Hazardous waste with the following EPA Hazardous Waste Code No. may be placed in an "organometallic" or "Appendix IV lab pack:"

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P001, P002, P003, P004, P005, P006, P007, P008, P009, P013,
P014, P015, P016, P017, P018, P020, P021, P022, P023, P024,
P026, P027, P028, P029, P030, P031, P033, P034, P036, P037,
P038, P039, P040, P041, P042, P043, P044, P045, P046, P047,
P048, P049, P050, P051, P054, P056, P057, P058, P059, P060,
P062, P063, P064, P065, P066, P067, P068, P069, P070, P071,
P072, P073, P074, P075, P077, P081, P082, P084, P085, P087,
P088, P089, P092, P093, P094, P095, P096, P097, P098, P099,
P101, P102, P103, P104, P105, P106, P108, P109, P110, P111,
P112, P113, P114, P115, P116, P118, P119, P120, P121, P122,
P123.
U001, U002, U003, U004, U005, U006, U007, U008, U009, U010,
U011, U012, U014, U015, U016, U017, U018, U019, U020, U021,
U022, U023, U024, U025, U026, U027, U028, U029, U030, U031,
U032, U033, U034, U035, U036, U037, U038, U039, U041, U042,
U043, U044, U045, U046, U047, U048, U049, U050, U051, U052,
U053, U055, U056, U057, U058, U059, U060, U061, U062, U063,
U064, U066, U067, U068, U069, U070, U071, U072, U073, U074,
U075, U076, U077, U078, U079, U080, U081, U082, U083, U084,
U085, U086, U087, U088, U089, U090, U091, U092, U093, U094,
U095, U096, U097, U098, U099, U101, U102, U103, U105, U106,
U107, U108, U109, U110, U111, U112, U113, U114, U115, U116,
U117, U118, U119, U120, U121, U122, U123, U124, U125, U126,
U127, U128, U129, U130, U131, U132, U133, U136, U137, U138,
U140, U141, U142, U143, U144, U145, U146, U147, U148, U149,
U150, U152, U153, U154, U155, U156, U157, U158, U159, U160,
U161, U162, U163, U164, U165, U166, U167, U168, U169, U170,
U171, U172, U173, U174, U176, U177, U178, U179, U180, U181,
U182, U183, U184, U185, U186, U187, U188, U189, U190, U191,
U192, U193, U194, U196, U197, U200, U201, U202, U203, U204,
U205, U206, U207, U208, U209, U210, U211, U213, U214, U215,
U216, U217, U218, U219, U220, U221, U222, U223, U225, U226,
U227, U228, U234, U235, U236, U237, U238, U239, U240, U243,
U244, U246, U247, U248, U249.
F001, F002, F003, F004, F005, F006, F010, F020, F021, F022,
F023, F024, F025, F026, F027, F028, F039.
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K001, K002, K008, K009, K010, K011, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040, K041, K042, K043, K044, K045, K046, K047, K048, K049, K050, K051, K052, K060, K061, K069, K071, K073, K083, K084, K085, K086, K087, K093, K094, K095, K096, K097, K098, K099, K101, K102, K103, K104, K105, K113, K114, K115, K116.

D001, D002, D003, D004, D005, D006, D007, D008, D010, D011, D012, D013, D014, D015, D016, D017.
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14. Part 268, appendix V is revised to read as follows:

Appendix V-Organic Lab Packs

Hazardous waste with the following EPA Hazardous Waste Code No. may be placed in an "organic" or "Appendix V" lab pack:

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P001, P002, P003, P004, P005, P007, P008, P009, P014, P016,
P017, P018, P020, P021, P022, P023, P024, P026, P027, P028,
P030, P031, P033, P034, P037, P039, P040, P041, P042, P043,
P044, P045, P046, P047, P048, P049, P050, P051, P054, P057,
P058, P059, P060, P062, P063, P064, P066, P067, P068, P069,
P070, P071, P072, P075, P077, P081, P082, P084, P085, P088,
P089, P093, P094, P095, P097, P098, P101, P102, P105, P106,
P108, P109, P111, P112, P116, P118, P123.
U001, U002, U003, U004, U005, U006, U007, U008, U009, U010,
U011, U012, U014, U015, U016, U017, U018, U019, U020, U021,
U022, U023, U024, U025, U026, U027, U028, U029, U030, U031,
U033, U034, U035, U036, U037, U038, U039, U041, U042, U043,
U044, U045, U046, U047, U048, U049, U050, U052, U053, U055,
U056, U057, U058, U059, U060, U061, U062, U063, U064, U066,
U067, U068, U069, U070, U071, U072, U073, U074, U075, U076,
U077, U078, U079, U080, U081, U082, U083, U084, U085, U086,
U087, U088, U089, U090, U091, U092, U093, U094, U095, U096,
U097, U098, U099, U101, U102, U103, U105, U106, U107, U108,
U109, U110, U111, U112, U113, U114, U115, U116, U117, U118,
U119, U120, U121, U122, U123, U124, U125, U126, U127, U128,
U129, U130, U131, U132, U133, U135, U137, U138, U140, U141,
U142, U143, U147, U148, U149, U150, U152, U153, U154, U155,
U156, U157, U158, U159, U160, U161, U162, U163, U164, U165,
U166, U167, U168, U169, U170, U171, U172, U173, U174, U176,
U177, U178, U179, U180, U181, U182, U183, U184, U185, U186,
U187, U188, U189, U190, U191, U192, U193, U194, U196, U197,
U200, U201, U202, U203, U206, U207, U208, U209, U210, U211,
U213, U218, U219, U220, U221, U222, U223, U225, U226, U227,
U228, U234, U235, U236, U237, U238, U239, U240, U243, U244,
U246, U247, U248, U249.
F001, F002, F003, F004, F005, F010, F020, F021, F022, F023,
F025, F026, F027, F028.
K009, K010, K011, K013, K014, K016, K017, K018, K019, K020,
K023, K024, K025, K026, K027, K029, K030, K032, K033, K034,
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K035, K036, K037, K038, K039, K040, K041, K042, K043, K044, K045, K047, K060, K073, K085, K093, K094, K095, K096, K097, K098, K099, K103, K104, K105, K113, K114, K116. D001, D012, D013, D014, D015, D016, D017.

15. Appendix VII to part 268 is revised to read as follows:

Appendix VII

Table 1.-Effective Dates of Surface Disposed Wastes (Non-Soil and Debris) Regulated in the LDRs^a - Comprehensive List

Waste code	Waste category	Effective date
California list	Liquid hazardous wastes, including free liquids associated with solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/l or certain metals or compounds of these metals greater than or equal to the prohibition levels	July 8, 1987.
California list California list	Liquid (aqueous) hazardous wastes having a pH less than or equal to 2 Dilute HOC wastewaters, defined as HOC-waste mixtures that are primarily water and that contain greater than or equal to 1,000 mg /l but less than 10,000	July 8, 1987. July 8, 1987.
California list	mg/l Liquid hazardous waste containing PCBs greater than or equal to 50 ppm	July 8, 1987.
California list	Other liquid and nonliquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg	Nov. 8, 1988.
0001	All	Aug. 8, 1990.
002	All	Aug. 8, 1990.
003	All	Aug. 8, 1990.
004	Wastewater	Aug. 8, 1990.
004	Nonwastewater	May 8, 1992.
005	All	Aug. 8, 1990.
006	All	Aug. 8, 1990.
007	All	Aug. 8, 1990.
800	Lead materials before secondary smelting	May 8, 1992.
800	All others	Aug. 8, 1990.
009	Nonwastewater	May 8, 1992.
009	All others	Aug. 8, 1990.
010	All	Aug. 8, 1990.
011	All	Aug. 8, 1990.
012	All	Aug. 8, 1990.
013	All	Aug. 8, 1990.
014	All	Aug. 8, 1990.
015	All	Aug. 8, 1990.
016	All	Aug. 8, 1990.
017	All	Aug. 8, 1990.
001	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
001	All others	Nov. 8, 1986.
002 (1,1,2-	Wastewater and Nonwastewater	Aug. 8, 1990.
ichloroethane)		
002	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
002	All others	Nov. 8, 1986.
003	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
003	All others	Nov. 8, 1986.
004	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.

F004 F005 (benzene, 2-ethoxy ethanol,	All others Wastewater and Nonwastewater	Nov. 8, 1986. Aug. 8, 1990.
2-nitropropane) F005	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
F005	All others	Nov. 8, 1986.
F006	Wastewater	Aug. 8, 1990.
F006	Nonwastewater	Aug. 8, 1988.
F006 (cyanides)	Nonwastewater	July 8, 1989.
F007	All	July 8, 1989.
F008	All	July 8, 1989.
F009	All	July 8, 1989.
F010	All	June 8, 1989.
F011 (cyanides)	Nonwastewater	Dec. 8, 1989.
F011	All others	July 8, 1989.
F012 (cyanides)	Nonwastewater	Dec. 8, 1989.
F012	All others	July 8, 1989.
F019	All	Aug. 8, 1990.
F020	All	Nov. 8, 1988.
F021	All	Nov. 8, 1988.
F022	All	Nov. 8, 1988.
F023	All	Nov. 8, 1988.
F024 (metals)	Wastewater	June 8, 1989.
F024 (metals)	Nonwastewater	Aug. 8, 1990.
F024 ^b	All others	June 8, 1989.
F025	All	Aug. 8, 1990.
F026	All	Nov. 8, 1988.
F027	All	Nov. 8, 1988.
F028	All	Nov. 8, 1988.
F039	Wastewater	Aug. 8, 1990.
F039	Nonwastewater	May 8, 1992.
K001 (organics) ^b	All	Aug. 8, 1988.
K001	All others	Aug. 8, 1988.
K002	All	Aug. 8, 1990.
K003	All	Aug. 8, 1990.
K004	Wastewater	Aug. 8, 1990.
K004°	Nonwastewater	Aug. 8, 1988.
K005 K005°	Wastewater	Aug. 8, 1990.
K005 K006	Nonwastewater All	June 8, 1989. Aug. 8, 1990.
K000 K007	Wastewater	Aug. 8, 1990.
K007 K007 ^c	Nonwastewater	June 8, 1989.
K008	Wastewater	Aug. 8, 1990.
K008°	Nonwastewater	Aug. 8, 1988.
K009	All	June 8, 1989.
K010	All	June 8, 1989.
K011	Wastewater	Aug. 8, 1990.
K011	Nonwastewater	June 8, 1989.
K013	Wastewater	Aug. 8, 1990.
K013	Nonwastewater	June 8, 1989.
K014	Wastewater	Aug. 8, 1990.
K014	Nonwastewater	June 8, 1989.
K015	Wastewater	Aug. 8, 1988.
K015	Nonwastewater	Aug. 8, 1990.
K016	All	Aug. 8, 1988.
K017	All	Aug. 8, 1990.
K018	All	Aug. 8, 1988.
K019	All	Aug. 8, 1988.
K020	All	Aug. 8, 1988.
K021	Wastewater	Aug. 8, 1990.
K021 ^c	Nonwastewater	Aug. 8, 1988.

14000	TML 4	A 0 4000
K022	Wastewater	Aug. 8, 1990.
K022	Nonwastewater	Aug. 8, 1988.
K023	All	June 8, 1989.
K024	All	Aug. 8, 1988.
K025	Wastewater	Aug. 8, 1990.
K025 ^c	Nonwastewater	Aug. 8, 1988.
K026	All	Aug. 8, 1990.
K027	All	June 8, 1989.
K028 (metals)	Nonwastewater	Aug. 8, 1990.
K028 (Metals)	All others	June 8, 1989.
K020 K029	Wastewater	
		Aug. 8, 1990.
K029	Nonwastewater	June 8, 1989.
K030	All	Aug. 8, 1988.
K031	Wastewater	Aug. 8, 1990.
K031	Nonwastewater	May 8, 1992.
K032	All	Aug. 8, 1990.
K033	All	Aug. 8, 1990.
K034	All	Aug. 8, 1990.
K035	All	Aug. 8, 1990.
K036	Wastewater	June 8, 1989.
K036°	Nonwastewater	Aug. 8, 1988.
K037 ^b	Wastewater	Aug. 8, 1988.
K037	Nonwastewater	
K037 K038	All	Aug. 8, 1988.
		June 8, 1989.
K039	All	June 8, 1989.
K040	All	June 8, 1989.
K041	All	Aug. 8, 1990.
K042	All	Aug. 8, 1990.
K043	All	June 8, 1989.
K044 ^c	All	Aug. 8, 1988.
K045 ^c	All	Aug. 8, 1988.
K046	Nonwastewater	
	Nonwastewater	Aug. 8, 1988.
(Nonreactive)		Aug. 8, 1988.
(Nonreactive) K046	All others	Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047°	All others All	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988.
(Nonreactive) K046 K047° K048	All others All Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048	All others All Wastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049	All others All Wastewater Nonwastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049	All others All Wastewater Nonwastewater Wastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049	All others All Wastewater Nonwastewater Wastewater Nonwastewater Nonwastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050 K050	All others All Wastewater Nonwastewater Wastewater Nonwastewater Nonwastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050 K050	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050 K050 K051	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Nov. 8, 1990. Nov. 8, 1990. Nov. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Vastewater Wastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060°	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc)	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7,	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater Wastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991).	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062	All others All Wastewater Nonwastewater Wastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062 K069 (Non-	All others All Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062	All others All Wastewater Nonwastewater Wastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062 K069 (Non-	All others All Wastewater Nonwastewater Wastewater Wastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Nonwastewater Wastewater Wastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062 K069 (Non-Calcium Sulfate)°	All others All Wastewater Nonwastewater Nonwastewater Nonwastewater Wastewater Nonwastewater Nonwastewater Nonwastewater	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062 K069 (Non-Calcium Sulfate)° K069 K071	All others All Wastewater Nonwastewater Nonwastewater Nonwastewater Wastewater All others	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K050 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062 K069 (Non-Calcium Sulfate)° K069 K071 K073	All others All Wastewater Nonwastewater Nonwastewater Nonwastewater All Nonwastewater All All	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1990.
(Nonreactive) K046 K047° K048 K048 K049 K049 K050 K051 K051 K052 K052 K060 K060° K061 K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991). K062 K069 (Non-Calcium Sulfate)° K069 K071	All others All Wastewater Nonwastewater Nonwastewater Nonwastewater Wastewater All Nonwastewater All others All	Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Nov. 8, 1990. Aug. 8, 1990. Aug. 8, 1988. Aug. 8, 1990. Aug. 8, 1990. Aug. 8, 1988.

K084	Nanuactouater	May 9, 4002
	Nonwastewater	May 8, 1992.
K085	All	Aug. 8, 1990.
K086 (organics) ^b	All all arthur	Aug. 8, 1988.
K086	All others	Aug. 8, 1988.
K087	All	Aug. 8, 1988.
K093	All	June 8, 1989.
K094	All	June 8, 1989.
K095	Wastewater	Aug. 8, 1990.
K095	Nonwastewater	June 8, 1989.
K096	Wastewater	Aug. 8, 1990.
K096	Nonwastewater	June 8, 1989.
K097	All	Aug. 8, 1990.
K098	All	Aug. 8, 1990.
K099	All	Aug. 8, 1988.
K100	Wastewater	Aug. 8, 1990.
K100°	Nonwastewater	Aug. 8, 1988.
K101 (organics)	Wastewater	Aug. 8, 1988.
K101 (metals)	Wastewater	Aug. 8, 1990.
K101 (organics)	Nonwastewater	Aug. 8, 1988.
K101 (metals)	Nonwastewater	May 8, 1992.
K102 (organics)	Wastewater	Aug. 8, 1988.
K102 (metals)	Wastewater	Aug. 8, 1990.
K102 (organics)	Nonwastewater	Aug. 8, 1988.
K102 (metals)	Nonwastewater	May 8, 1992.
K103	All	
K104	All	Aug. 8, 1988. Aug. 8, 1988.
K104 K105	All	<u> </u>
		Aug. 8, 1990.
K106	Wastewater	Aug. 8, 1990.
K106	Nonwastewater	May 8, 1992.
K113	All	June 8, 1989.
K114	All	June 8, 1989.
K115	All	June 8, 1989.
K116	All	June 8, 1989.
P001	All	Aug 8, 1990.
P002	All	Aug. 8, 1990.
P003	All	Aug. 8, 1990.
P004	All	Aug. 8, 1990.
P005	All	Aug. 8, 1990.
P006	All	Aug. 8, 1990.
P007	All	Aug. 8, 1990.
P008	All	Aug. 8, 1990.
P009	All	Aug. 8, 1990.
P010	Wastewater	Aug. 8, 1990.
P010	Nonwastewater	May 8, 1992.
P011	Wastewater	Aug. 8, 1990.
P011	Nonwastewater	May 8, 1992.
P012	Wastewater	Aug. 8, 1990.
P012	Nonwastewater	May 8, 1992.
P013 (barium)	Nonwastewater	Aug. 8, 1990.
P013 `	All others	June 8, 1989.
P014	All	Aug. 8, 1990.
P015	All	Aug. 8, 1990.
P016	All	Aug. 8, 1990.
P017	All	Aug. 8, 1990.
P018	All	Aug. 8, 1990.
P020	All	Aug. 8, 1990.
P021	All	June 8, 1989.
P022	All	Aug. 8, 1990.
P023	All	Aug. 8, 1990. Aug. 8, 1990.
P024	All	Aug. 8, 1990. Aug. 8, 1990.
P024 P026	All	Aug. 8, 1990. Aug. 8, 1990.
P026 P027	All	Aug. 8, 1990. Aug. 8, 1990.
1 041	ΔII	Aug. 0, 1990.

B000	A.II	
P028	All	Aug. 8, 1990.
P029	All	June 8, 1989.
P030	All	June 8, 1989.
P031	All	Aug. 8, 1990.
P033	All	Aug. 8, 1990.
P034	All	Aug. 8, 1990.
P036	Wastewater	Aug. 8, 1990.
P036	Nonwastewater	May 8, 1992.
P037	All	Aug. 8, 1990.
P038	Wastewater	Aug. 8, 1990.
P038	Nonwastewater	May 8, 1992.
P039	All	June 8, 1989.
P040	All	June 8, 1989.
P041	All	June 8, 1989.
P042	All	
		Aug. 8, 1990.
P043	All	June 8, 1989.
P044	All	June 8, 1989.
P045	All	Aug. 8, 1990.
P046	All	Aug. 8, 1990.
P047	All	Aug. 8, 1990.
P048	All	Aug. 8, 1990.
P049	All	Aug. 8, 1990.
P050	All	Aug. 8, 1990.
P051	All	Aug. 8, 1990.
P054	All	Aug. 8, 1990.
P056	All	Aug. 8, 1990.
P057	All	Aug. 8, 1990.
P058	All	Aug. 8, 1990.
P059	All	Aug. 8, 1990.
P060	All	Aug. 8, 1990.
P062	All	June 8, 1989.
P063	All	June 8, 1989.
P064	All	Aug. 8, 1990.
P065	Wastewater	Aug. 8, 1990.
P065	Nonwastewater	May 8, 1992.
	All	
P066	All	Aug. 8, 1990.
P067		Aug. 8, 1990.
P068	All	Aug. 8, 1990.
P069	All	Aug. 8, 1990.
P070	All	Aug. 8, 1990.
P071	All	June 8, 1989.
P072	All	Aug. 8, 1990.
P073	All	Aug. 8, 1990.
P074	All	June 8, 1989.
P075	All	Aug. 8, 1990.
P076	All	Aug. 8, 1990.
P077	All	Aug. 8, 1990.
P078	All	Aug. 8, 1990.
P081	All	Aug. 8, 1990.
P082	All	Aug. 8, 1990.
P084	All	Aug. 8, 1990.
P085	All	June 8, 1989.
P087	All	May 8, 1992.
P088	All	Aug. 8, 1990.
P089	All	June 8, 1989.
P092	Wastewater	Aug. 8, 1990.
P092	Nonwastewater	May 8, 1992.
P093	All	Aug. 8, 1990.
P094	All	
P095	All	June 8, 1989.
P095 P096		Aug. 8, 1990.
	All	Aug. 8, 1990.
P097	All	June 8, 1989.

P098	All	June 8, 1989.
P099 (silver)	Wastewater	Aug. 8, 1990.
P099	All others	June 8, 1989.
P101	All	Aug. 8, 1990.
P102	All	Aug. 8, 1990.
P103	All	Aug. 8, 1990.
P104 (silver)	Wastewater	Aug. 8, 1990.
P104	All others	June 8, 1989.
P105	All	
P106	All	Aug. 8, 1990.
		June 8, 1989.
P108	All	Aug. 8, 1990.
P109	All	June 8, 1989.
P110	All	Aug. 8, 1990.
P111	All	June 8, 1989.
P112	All	Aug. 8, 1990.
P113	All	Aug. 8, 1990.
P114	All	Aug. 8, 1990.
P115	All	Aug. 8, 1990.
P116	All	Aug. 8, 1990.
P118	All	Aug. 8, 1990.
P119	All	Aug. 8, 1990.
P120	All	Aug. 8, 1990.
P121	All	June 8, 1989.
P122	All	
		Aug. 8, 1990.
P123	All	Aug. 8, 1990.
U001	All	Aug. 8, 1990.
U002	All	Aug. 8, 1990.
U003	All	Aug. 8, 1990.
U004	All	Aug. 8, 1990.
U005	All	Aug. 8, 1990.
U006	All	Aug. 8, 1990.
U007	All	Aug. 8, 1990.
U008	All	Aug. 8, 1990.
U009	All	Aug. 8, 1990.
U010	All	Aug. 8, 1990.
U011	All	Aug. 8, 1990.
U012	All	Aug. 8, 1990.
U014	All	Aug. 8, 1990.
U015	All	Aug. 8, 1990.
		~
U016	All	Aug. 8, 1990.
U017	All	Aug. 8, 1990.
U018	All	Aug. 8, 1990.
U019	All	Aug. 8, 1990.
U020	All	Aug. 8, 1990.
U021	All	Aug. 8, 1990.
U022	All	Aug. 8, 1990.
U023	All	Aug. 8, 1990.
U024	All	Aug. 8, 1990.
U025	All	Aug. 8, 1990.
U026	All	Aug. 8, 1990.
U027	All	Aug. 8, 1990.
U028	All	June 8, 1989.
U029	All	Aug. 8, 1990.
U030	All	Aug. 8, 1990.
U031	All	Aug. 8, 1990.
U032	All	•
		Aug. 8, 1990.
U033	All	Aug. 8, 1990.
U034	All	Aug. 8, 1990.
U035	All	Aug. 8, 1990.
U036	All	Aug. 8, 1990.
U037	All	Aug. 8, 1990.
U038	All	Aug. 8, 1990.

U039	All	Aug. 8, 1990.
U041	All	
		Aug. 8, 1990.
U042	All	Aug. 8, 1990.
U043	All	Aug. 8, 1990.
U044	All	Aug. 8, 1990.
U045	All	Aug. 8, 1990.
U046	All	Aug. 8, 1990.
U047	All	Aug. 8, 1990.
U048	All	Aug. 8, 1990.
U049	All	Aug. 8, 1990.
U050	All	Aug. 8, 1990.
U051	All	Aug. 8, 1990.
U052	All	Aug. 8, 1990.
U053	All	Aug. 8, 1990.
U055	All	Aug. 8, 1990.
U056	All	Aug. 8, 1990.
U057	All	Aug. 8, 1990.
U058	All	June 8, 1989.
U059	All	Aug. 8, 1990.
U060	All	Aug. 8, 1990.
U061	All	Aug. 8, 1990.
U062	All	Aug. 8, 1990.
U063	All	Aug. 8, 1990.
U064	All	Aug. 8, 1990.
		-
U066	All	Aug. 8, 1990.
U067	All	Aug. 8, 1990.
U068	All	Aug. 8, 1990.
U069	All	June 8, 1989.
U070	All	Aug. 8, 1990.
U071	All	Aug. 8, 1990.
U072	All	Aug. 8, 1990.
U073	All	Aug. 8, 1990.
U074	All	Aug. 8, 1990.
U075	All	Aug. 8, 1990.
U076	All	Aug. 8, 1990.
U077	All	
		Aug. 8, 1990.
U078	All	Aug. 8, 1990.
U079	All	Aug. 8, 1990.
U080	All	Aug. 8, 1990.
U081	All	Aug. 8, 1990.
U082	All	Aug. 8, 1990.
U083	All	Aug. 8, 1990.
U084	All	Aug. 8, 1990.
U085	All	Aug. 8, 1990.
U086	All	Aug. 8, 1990.
U087	All	June 8, 1989.
U088	All	June 8, 1989.
U089	All	Aug. 8, 1990.
U090	All	Aug. 8, 1990.
U091	All	Aug. 8, 1990.
U092	All	Aug. 8, 1990.
U093	All	Aug. 8, 1990.
U094	All	Aug. 8, 1990.
U095	All	Aug. 8, 1990.
U096	All	Aug. 8, 1990.
U097	All	Aug. 8, 1990.
U098	All	Aug. 8, 1990.
U099	All	Aug. 8, 1990.
U101	All	Aug. 8, 1990.
U102	All	June 8, 1989.
U103	All	Aug. 8, 1990.
U105	All	Aug. 8, 1990.

U106	All	Aug. 8, 1990.
U107	All	June 8, 1989.
U108	All	Aug. 8, 1990.
U109	All	Aug. 8, 1990.
U110	All	Aug. 8, 1990.
U111	All	Aug. 8, 1990.
U112	All	Aug. 8, 1990.
U113	All	Aug. 8, 1990.
U114	All	Aug. 8, 1990.
U115	All	
		Aug. 8, 1990.
U116	All	Aug. 8, 1990.
U117	All	Aug. 8, 1990.
U118	All	Aug. 8, 1990.
U119	All	Aug. 8, 1990.
U120	All	Aug. 8, 1990.
U121	All	Aug. 8, 1990.
U122	All	Aug. 8, 1990.
U123	All	Aug. 8, 1990.
U124	All	Aug. 8, 1990.
U125	All	Aug. 8, 1990.
U126	All	-
		Aug. 8, 1990.
U127	All	Aug. 8, 1990.
U128	All	Aug. 8, 1990.
U129	All	Aug. 8, 1990.
U130	All	Aug. 8, 1990.
U131	All	Aug. 8, 1990.
U132	All	Aug. 8, 1990.
U133	All	Aug. 8, 1990.
U134	All	Aug. 8, 1990.
U135	All	Aug. 8, 1990.
U136	Wastewater	Aug. 8, 1990.
U136	Nonwastewater	
		May 8, 1992.
U137	All	Aug. 8, 1990.
U138	All	Aug. 8, 1990.
U140	All	Aug. 8, 1990.
U141	All	Aug. 8, 1990.
U142	All	Aug. 8, 1990.
U143	All	Aug. 8, 1990.
U144	All	Aug. 8, 1990.
U145	All	Aug. 8, 1990.
U146	All	Aug. 8, 1990.
U147	All	Aug. 8, 1990.
U148	All	Aug. 8, 1990.
U149	All	
	All	Aug. 8, 1990.
U150		Aug. 8, 1990.
U151	Wastewater	Aug. 8, 1990.
U151	Nonwastewater	May 8, 1992.
U152	All	Aug. 8, 1990.
U153	All	Aug. 8, 1990.
U154	All	Aug. 8, 1990.
U155	All	Aug. 8, 1990.
U156	All	Aug. 8, 1990.
U157	All	Aug. 8, 1990.
U158	All	Aug. 8, 1990.
U159	All	Aug. 8, 1990.
U160	All	Aug. 8, 1990.
U161		-
	All	Aug. 8, 1990.
U162	All	Aug. 8, 1990.
U163	All	Aug. 8, 1990.
U164	All	Aug. 8, 1990.
U165	All	Aug. 8, 1990.
U166	All	Aug. 8, 1990.

U167	All	Aug. 8, 1990.
	All	
U168		Aug. 8, 1990.
U169	All	Aug. 8, 1990.
U170	All	Aug. 8, 1990.
U171	All	Aug. 8, 1990.
U172	All	Aug. 8, 1990.
U173	All	Aug. 8, 1990.
U174	All	Aug. 8, 1990.
U176	All	Aug. 8, 1990.
	All	
U177		Aug. 8, 1990.
U178	All	Aug. 8, 1990.
U179	All	Aug. 8, 1990.
U180	All	Aug. 8, 1990.
U181	All	Aug. 8, 1990.
U182	All	Aug. 8, 1990.
U183	All	Aug. 8, 1990.
U184	All	Aug. 8, 1990.
U185	All	Aug. 8, 1990.
U186	All	
		Aug. 8, 1990.
U187	All	Aug. 8, 1990.
U188	All	Aug. 8, 1990.
U189	All	Aug. 8, 1990.
U190	All	June 8, 1989.
U191	All	Aug. 8, 1990.
U192	All	Aug. 8, 1990.
U193	All	Aug. 8, 1990.
U194	All	Aug. 8, 1990.
U196	All	Aug. 8, 1990.
U197	All	Aug. 8, 1990.
U200	All	Aug. 8, 1990.
U201	All	Aug. 8, 1990.
U202	All	Aug. 8, 1990.
U203	All	Aug. 8, 1990.
U204	All	Aug. 8, 1990.
U205	All	Aug. 8, 1990.
U206	All	Aug. 8, 1990.
U207	All	Aug. 8, 1990.
	All	
U208		Aug. 8, 1990.
U209	All	Aug. 8, 1990.
U210	All	Aug. 8, 1990.
U211	All	Aug. 8, 1990.
U213	All	Aug. 8, 1990.
U214	All	Aug. 8, 1990.
U215	All	Aug. 8, 1990.
U216	All	Aug. 8, 1990.
U217	All	Aug. 8, 1990.
U218	All	Aug. 8, 1990.
U219	All	Aug. 8, 1990.
U220	All	Aug. 8, 1990.
U221	All	June 8, 1989.
U222	All	Aug. 8, 1990.
U223	All	June 8, 1989.
U225	All	Aug. 8, 1990.
U226	All	Aug. 8, 1990.
U227	All	Aug. 8, 1990.
U228	All	Aug. 8, 1990.
U234	All	-
		Aug. 8, 1990.
U235	All	June 8, 1989.
U236	All	Aug. 8, 1990.
U237	All	Aug. 8, 1990.
U238	All	Aug. 8, 1990.
U239	All	Aug. 8, 1990.

U240	All	Aug. 8, 1990.
U243	All	Aug. 8, 1990.
U244	All	Aug. 8, 1990.
U246	All	Aug. 8, 1990.
U247	All	Aug. 8, 1990.
U248	All	Aug. 8, 1990.
U249	All	Aug. 8, 1990.

a This table does not include mixed radioactive wastes (from the First, Second,and Third rules) which are receiving a national capacity variance until May 8, 1992, for all applicable treatment technologies. This table also does not include contaminated soil and debris wastes.

Appendix VII

Table 2.-Summary of Effective Dates of Land Disposal Restrictions for Contaminated Soil and Debris (CSD)

Restricted hazardous waste in CSD		Effective date	
1.	Solvent-(F001-F005) and dioxin-(F020-F023 and F026-F028) containing soil and debris from	Nov. 8, 1990.	
2.	CERCLA response of RCRA corrective actions. Soil and debris not from CERCLA response or RCRA corrective actions contaminated with less than 1% total solvents (F001-F005) or dioxins (F020-F023 and F026-F028).	Nov. 8, 1988.	
3.	Soil and debris contaminated with California list HOCs from CERCLA response or RCRA corrective actions.	Nov. 8, 1990.	
4.	Soil and debris contaminated with California list HOCs not from CERCLA response or RCRA corrective actions.	July 8, 1989.	
5.	All soil and debris contaminated with First Third wastes for which treatment standards are based on incineration.	Aug. 8, 1990.	
6.	All soil and debris contaminated with Second Third wastes for which treatment standards are based on incineration.	June 8, 1991.	
7.	All soil and debris contaminated with Third Third wastes or, First or Second Third "soft hammer" wastes which had treatment standards promulgated in the Third Third rule, for which treatment standards are based on incineration, vitrification, or mercury retorting, acid leaching followed by chemical precipitation, or thermal recovery of metals, as well as all inorganic solids debris contaminated with D004-D011 wastes, and all soil and debris contaminated with mixed RCRA/radioactive wastes.	May 8, 1992.	

^b The standard has been revised in the Third Third Final Rule.

 $^{^{\}circ}$ No land disposal standard has been revised in the Third Third Final Rule.

- 2. Contaminated Soil and Debris Rule will be promulgated in the future.
- 16. Appendix VIII to part 268 is revised to read as follows:

Appendix VIII

National Capacity LDR Variances for UIC Wastes^a

Waste code	Waste category	Effective date
F001-F005	All spent F001-F005 solvent containing less than 1 percent total F001-F005 solvent constituents	Aug. 8, 1990.
California list	Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/l, or containing certain metals or compounds of these metals greater than or equal to the prohibition levels	Aug. 8, 1990.
California list	Liquid hazardous waste having a pH less than or equal to 2	Aug. 8, 1990.
California list	Hazardous wastes containing HOCs in total concentrations less than 10,000 mg/l but greater than or equal to 1,000 mg/l	Aug. 8, 1990.
D002 ^b	All	May 8, 1992.
D003 (cyanides)	All	May 8, 1992.
D003 (sulfides)	All	May 8, 1992.
D003 (explosives, reactives).	All	May 8, 1992.
D007	All	May 8, 1992.
D009	Nonwastewater	May 8, 1992.
F007	All	June 8, 1991.
F039	Wastewater	May 8, 1992.
K009	Wastewater	June 8, 1991.
K011	Nonwastewater	June 8, 1991.
K011	Wastewater	May 8, 1992.
K013	Nonwastewater	June 8, 1991.
K013	Wastewater	May 8, 1992.
K014	All	May 8, 1992.
K016 (dilute)	All	June 8, 1991.
K049	All	Aug. 8, 1990.
K050	All	Aug. 8, 1990.
K051	All	Aug. 8, 1990.
K052	All	Aug. 8, 1990.
K062	All	Aug. 8, 1990.
K071	All	Aug. 8, 1990.
K104	All	Aug. 8, 1990.

^a Wastes that are deep well disposed on-site receive a six-month variance, with restrictions effective in November 1990.

Note: This table is provided for the convenience of the reader.

^b Deepwell injected D002 liquids with a pH less than 2 must meet the California List treatment standards on August 8, 1990.

17. Appendix IX is added to part 268 to read as follows:

Appendix IX-Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test (SW-846, Method 1310A)

1.0 Scope and Application

- 1.1 This method is an interim method to determine whether a waste exhibits the characteristic of Extraction Procedure Toxicity.
- 1.2 The procedure may also be used to simulate the leaching which a waste may undergo if disposed of in a sanitary landfill. Method 1310 is applicable to liquid, solid, and multiphase samples.

2.0 Summary of Method

 $2.1~{
m If}$ a representative sample of the waste contains >0.5% solids, the solid phase of the sample is ground to pass a 9.5 mm sieve and extracted with deionized water which is maintained at a pH of 5 ± 0.2, with acetic acid. Wastes that contain <0.5% filterable solids are, after filtering, considered to be the EP extract for this method. Monolithic wastes which can be formed into a cylinder 3.3 cm (dia) x 7.1 cm, or from which such a cylinder can be formed which is representative of the waste, may be evaluated using the Structural Integrity Procedure instead of being ground to pass a 9.5-mm sieve.

3.0 Interferences

3.1 Potential interferences that may be encountered during analysis are discussed in the individual analytical methods.

4.0 Apparatus and Materials

- 4.1 Extractor-For purposes of this test, an acceptable extractor is one that will impart sufficient agitation to the mixture to (1) prevent stratification of the sample and extraction fluid and (2) ensure that all sample surfaces are continuously brought into contact with well-mixed extraction fluid. Examples of suitable extractors are shown in Figures 1-3 of this method and are available from: Associated Designs & Manufacturing Co., Alexandria, Virginia; Glas-Col Apparatus Co., Terre Haute, Indiana; Millipore, Bedford, Massachusetts; and Rexnard, Milwaukee, Wisconsin.
- $4.2\ \mathrm{pH}$ meter or pH controller-Accurate to $0.05\ \mathrm{pH}$ units with temperature compensation.
- 4.3 Filter holder-Capable of supporting a 0.45-µm filter membrane and of withstanding the pressure needed to accomplish separation. Suitable filter holders range from simple vacuum units to relatively complex systems that can exert up to $5.3~{\rm kg/cm^3}$ (75 psi) of pressure. The type of filter holder used depends upon the properties of the mixture to be filtered. Filter holders known to EPA and deemed suitable for use are listed in Table 1.
- 4.4 Filter membrane-Filter membrane suitable for conducting the required filtration shall be fabricated from a material that (1) is not physically changed by the waste material to be filtered and (2) does not absorb or leach the chemical species for which a waste's EP extract will be analyzed. Table 2 lists filter media known to the agency to be suitable for solid waste testing.
- 4.4.1 In cases of doubt about physical effects on the filter, contact the filter manufacturer to determine if the membrane or the prefilter is adversely affected by the particular waste. If no information is available, submerge the filter in the waste's liquid phase. A filter that undergoes

visible physical change after 48 hours (i.e., curls, dissolves, shrinks, or swells) is unsuitable for use.

- 4.4.2 To test for absorption or leaching by the filter:
- 4.4.2.1 Prepare a standard solution of the chemical species of interest.
- 4.4.2.2 Analyze the standard for its concentration of the chemical species.
- 4.4.2.3 Filter the standard and reanalyze. If the concentration of the filtrate differs from that of the original standard, then the filter membrane leaches or absorbs one or more of the chemical species and is not usable in this test method.
- 4.5 Structural integrity tester-A device meeting the specifications shown in Figure 4 and having a 3.18-cm (1.25-in) diameter hammer weighing 0.33 kg $(0.73 \ lb)$ with a free fall of 15.24 cm $(6 \ in)$ shall be used. This device is available from Associated Design and Manufacturing Company, Alexandria, VA 22314, as Part No. 125, or it may be fabricated to meet these specifications.

5.0 Reagents

- 5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.
- 5.2 Reagent water. All references to water in this method refer to reagent water, as defined in Chapter One.
- 5.3 Acetic acid (0.5N), CH_3COOH . This can be made by diluting concentrated glacial acetic acid (17.5N) by adding 57 ml glacial acetic acid to 1,000 ml of water and diluting to 2 liters. The glacial acetic acid must be of high purity and monitored for impurities.
- 5.4 Analytical standards should be prepared according to the applicable analytical methods.
- 6.0 Sample Collection, Preservation, and Handling
- 6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in Chapter Nine of this manual.
 - 6.2 Preservatives must not be added to samples.
- 6.3 Samples can be refrigerated if it is determined that refrigeration will not affect the integrity of the sample.

7.0 Procedure

- 7.1 If the waste does not contain any free liquid, go to Step 7.9. If the sample is liquid or multiphase, continue as follows. Weigh filter membrane and prefilter to $\pm~0.01$ g. Handle membrane and prefilters with blunt curvedtip forceps or vacuum tweezers, or by applying suction with a pipet.
- 7.2 Assemble filter holder, membranes, and prefilters following the manufacturer's instructions. Place the $0.45-\mu m$ membrane on the support screen

and add prefilters in ascending order of pore size. Do not prewet filter membrane.

- 7.3 Weigh out a representative subsample of the waste (100 g minimum).
- 7.4 Allow slurries to stand, to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration.
- 7.5 Wet the filter with a small portion of the liquid phase from the waste or from the extraction mixture. Transfer the remaining material to the filter holder and apply vacuum or gentle pressure (10-15 psi) until all liquid passes through the filter. Stop filtration when air or pressurizing gas moves through the membrane. If this point is not reached under vacuum or gentle pressure, slowly increase the pressure in 10-psi increments to 75 psi. Halt filtration when liquid flow stops. This liquid will constitute part or all of the extract (refer to Step 7.16). The liquid should be refrigerated until time of analysis.

Note: Oil samples or samples containing oil are treated in exactly the same way as any other sample. The liquid portion of the sample is filtered and treated as part of the EP extract. If the liquid portion of the sample will not pass through the filter (usually the case with heavy oils or greases), it should be carried through the EP extraction as a solid.

- 7.6 Remove the solid phase and filter media and, while not allowing them to dry, weigh to $\pm~0.01$ g. The wet weight of the residue is determined by calculating the weight difference between the weight of the filters (Step 7.1) and the weight of the solid phase and the filter media.
- 7.7 The waste will be handled differently from this point on, depending on whether it contains more or less than 0.5% solids. If the sample appears to have <0.5% solids, determine the percent solids exactly (see Note below) by the following procedure:
- 7.7.1 Dry the filter and residue at 80 $^{\circ}\text{C}$ until two successive weighings yield the same value.
 - 7.7.2 Calculate the percent solids, using the following equation:

weight of filtered solid and filters	-	tared of filters	weight	
			= X 100= solids	-

initial weight of waste material

Note: This procedure is used only to determine whether the solid must be extracted or whether it can be discarded unextracted. It is not used in calculating the amount of water or acid to use in the extraction step. Do not extract solid material that has been dried at 80 $^{\circ}\text{C}$. A new sample will have to be used for extraction if a percent solids determination is performed.

- 7.8 If the solid constitutes <0.5% of the waste, discard the solid and proceed immediately to Step 7.17, treating the liquid phase as the extract.
- 7.9 The solid material obtained from Step 7.5 and all materials that do not contain free liquids shall be evaluated for particle size. If the solid material has a surface area per g of material $\geq 3.1~\rm cm^2$ or passes through a 9.5-mm (0.375-in.) standard sieve, the operator shall proceed to Step 7.11. If

the surface area is smaller or the particle size larger than specified above, the solid material shall be prepared for extraction by crushing, cutting, or grinding the material so that it passes through a 9.5-mm (0.375-in.) sieve or, if the material is in a single piece, by subjecting the material to the "Structural Integrity Procedure" described in Step 7.10.

- 7.10 Structural Integrity Procedure (SIP).
- 7.10.1 Cut a 3.3-cm diameter by 7.1-cm long cylinder from the waste material. If the waste has been treated using a fixation process, the waste may be cast in the form of a cylinder and allowed to cure for 30 days prior to testing.
- 7.10.2 Place waste into sample holder and assemble the tester. Raise the hammer to its maximum height and drop. Repeat 14 additional times.
- 7.10.3 Remove solid material from tester and scrape off any particles adhering to sample holder. Weigh the waste to the nearest $0.01~\mathrm{g}$ and transfer it to the extractor.
- 7.11 If the sample contains >0.5% solids, use the wet weight of the solid phase (obtained in Step 7.6) to calculate the amount of liquid and acid to employ for extraction by using the following equation:

 $W = W_f - W_t$

where:

W = Wet weight in g of solid to be charged to extractor.

 W_f = Wet weight in g of filtered solids and filter media.

 W_t = Weight in g of tared filters.

If the waste does not contain any free liquids, $100~{\rm g}$ of the material will be subjected to the extraction procedure.

- 7.12 Place the appropriate amount of material (refer to Step 7.11) into the extractor and add 16 times its weight with water.
- 7.13 After the solid material and water are placed in the extractor, the operator shall begin agitation and measure the pH of the solution in the extractor. If the pH is >5.0, the pH of the solution shall be decreased to 5.0 ± 0.2 by slowly adding 0.5N acetic acid. If the pH is ≤ 5.0 , no acetic acid should be added. The pH of the solution shall be monitored, as described below, during the course of extraction, and, if the pH rises above 5.2, 0.5N acetic acid shall be added to bring the pH down to 5.0 \pm 0.2. However, in no event shall the aggregate amount of acid added to the solution exceed 4 mL of acid per g of solid. The mixture shall be agitated for 24 hours and maintained at 20-40 °C (68-104 °F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller, manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123, or its equivalent, in conjunction with a metering pump and reservoir of 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed.

Note: Do not add acetic acid too quickly. Lowering the pH to below the target concentration of 5.0 could affect the metal concentrations in the leachate.

 $7.13.1~\mbox{A}$ pH meter shall be calibrated in accordance with the manufacturer's specifications.

- 7.13.2 The pH of the solution shall be checked and, if necessary, 0.5N acetic acid shall be manually added to the extractor until the pH reaches 5.0 ± 0.2 . The pH of the solution shall be adjusted at 15-, 30-, and 60-minute intervals, moving to the next longer interval if the pH does not have to be adjusted more than 0.5 pH units.
 - 7.13.3 The adjustment procedure shall be continued for at least 6 hours.
- 7.13.4 If, at the end of the 24-hour extraction period, the pH of the solution is not below 5.2 and the maximum amount of acid (4 mL per g of solids) has not been added, the pH shall be adjusted to 5.0 ± 0.2 and the extraction continued for an additional 4 hours, during which the pH shall be adjusted at 1-hour intervals.
- 7.14 At the end of the extraction period, water shall be added to the extractor in an amount determined by the following equation:

V = (20)(W) - 16(W) - A

Where:

V=mL water to be added. W=Weight in g of solid charged to extractor. A=mL of 0.5N acetic acid added during extraction.

- 7.15 The material in the extractor shall be separated into its component liquid and solid phases in the following manner:
- 7.15.1 Allow slurries to stand to permit the solid phase to settle (wastes that are slow to settle may be centrifuged prior to filtration) and set up the filter apparatus (refer to Steps 4.3 and 4.4).
- 7.15.2 Wet the filter with a small portion of the liquid phase from the waste or from the extracted mixture. Transfer the remaining material to the filter holder and apply vacuum or gentle pressure (10-15 psi) until all liquid passes through the filter. Stop filtration when air or pressurized gas moves through the membrane. If this point is not reached under vacuum or gentle pressure, slowly increase the pressure in 10-psi increments to 75 psi. Halt filtration when liquid flow stops.
- 7.16 The liquids resulting from Steps 7.5 and 7.15 shall be combined. This combined liquid (or waste itself, if it has < 0.5% solids, as noted in Step 7.8) is the extract and shall be analyzed for the presence of any of the contaminants specified in 40 CFR 261.24 using the analytical procedures as designated in Step 7.17.
- 7.17 The extract is then prepared and analyzed using the appropriate analytical methods described in Chapters Three and Four of this manual.

Note: If the EP extract includes two phases, concentration of contaminants is determined by using a simple weighted average. For example: An EP extract contains 50 mL of oil and 1,000 mL of an aqueous phase. Contaminant concentrations are determined for each phase. The final contamination concentration is taken to be:

50 X contaminant conc. in oil

1,000 X contamination conc. of aqueous phase

Note: In cases where a contaminant was not detected, use the MDL in the calculation. For example, if the MDL in the oily phase is 100~mg/L and 1~mg/L in the aqueous phase, the reporting limit would be 6~mg/L (rounded to the nearest mg). If the regulatory threshold is 5~mg/L, the waste may be EP toxic and results of the analysis are inconclusive.

7.18 The extract concentrations are compared with the maximum contamination limits listed in 40 CFR 261.24. If the extract concentrations are greater than or equal to the respective values, the waste then is considered to exhibit the characteristic of Extraction Procedure Toxicity.

8.0 Quality Control

8.1 Refer to Chapter One for specific quality control procedures.

9.0 Method Performance

9.1 The data tabulated in Table 3 were obtained from records of state and contractor laboratories and are intended to show the precision of the entire method (1301 plus analysis method).

10.0 References

- 1. Rohrbough, W.G.; et al. Reagent Chemicals, American Chemical Society Specifications, 7th ed.; American Chemical Society: Washington, DC 1986.
- 2. 1985 Annual Book of ASTM Standards, Vol. 11.01; "Standard Specification for Reagent Water"; ASTM: Philadelphia, PA, 1985; D1193-77.
- 3. Gaskill, A., Compilation and Evaluation of RCRA Method Performance Data, Work Assignment No. 2, EPA Contract No. 68-01-7075, September 1986.

Table 1.-EPA-Approved Filter Holders

Manufacturer	Size	Model No.	Comments
Vacuum Filters			
Gelman	47 mm	4011	
Nalgene	500 mL	44-0045	Disposable plastic unit, including prefilter, filter pads, and reservoir; can be used when solution is to be analyzed for inorganic constituents.
Nuclepore	47 mm	410400	
Millipore	47 mm	XX10 047 00	
Pressure Filters			
Nuclepore	142 mm	425900	
Micro Filtration Systems	142 mm	302300	
Millipore	142 mm	YT30 142 HW	

Table 2.-EPA-Approved Filtration Media

Supplier	Filter to be used for aqueous systems	Filter to be used for organic systems
Coarse prefilters		
Gelman	61631, 61635	61631, 61635
Nuclepore	210907, 211707	210907, 211707
Millipore	AP25 035 00, AP25 127 50	AP25 035 00, AP25 127 50
Medium prefilters		
Gelman	61654, 61655	
Nuclepore	210905, 211705	210905, 211705
Millipore	AP20 035 00, AP20 124 50	AP20 035 00, AP20 124 50
Fine prefilters		
Gelman	64798, 64803	64798, 64803
Nuclepore	210903, 211703	210903, 211703
Millipore	AP15 035 00, AP15 124 50	AP15 035 00, AP15 124 50
Fine filters (0.45 µm)		
Gelman	63069, 66536	60540 or 66149, 66151
Pall	NX04750, NX14225	000 10 01 001 10, 00 10 1
Nuclepore	142218	a142218
Millipore	HAWP 047 00, HAWP 142 50	FHUP 047 00, FHLP 142 50
Selas	83485-02, 83486-02	83485-02, 83486-02
	:	,

Table 3.-Precisions of Extraction-Analysis Procedures for Several Elements

Element	Sample matrix	Analysis method	Laboratory replicates
Arsenic	1. Auto fluff	7060	1.8,1.5 μg/L
	2. Barrel sludge	7060	0.9, 2.6 μg/L
Davissa	Lumber treatment company sediment Land arrelling agricular agreed dust	7060	28, 42 mg/L
Barium	Lead smelting emission control dust Auto fluff	6010 7081	0.12, 0.12 mg/L
	3. Barrel sludge	7081	791, 780 μg/L 422, 380 μg/L
Cadmium	Lead smelting emission control dust	3010/7130	422, 360 μg/L 120, 120 mg/L
Cauman	Wastewater treatment sludge from electroplating	3010/7130	360, 290 mg/L
	3. Auto fluff	7131	470, 610 μg/L
	4. Barrel sludge	7131	1100, 890 µg/L
	Oil refinery tertiary pond sludge	7131	3.2, 1.9 µg/L
Chromium	Wastewater treatment sludge from electroplating	3010/7190	1.1, 1.2 mg/L
	2. Paint primer	7191	61, 43 µg/Ľ
	3. Paint primer filter	7191	-
	Lumber treatment company sediment	7191	0.81, 0.89 mg/L
	5. Oil refinery tertiary pond sludge	7191	-
Mercury	Barrel sludge	7470	0.15, 0.09 μg/L
	Wastewater treatment sludge from electroplating	7470	1.4, 0.4 μg/L
	Lead smelting emission control dust	7470	0.4, 0.4 µg/L
Lead	Lead smelting emission control dust	3010/7420	940, 920 mg/L
	2. Auto fluff	7421	1540, 1490 μg/L
	3. Incinerator ash	7421	1000, 974 μg/L
	4. Barrel sludge	7421	2550, 2800 μg/L
	Oil refinery tertiary pond sludge	7421	31, 29 μg/L

^aSusceptible to decomposition by certain polar organic solvents.

Nickel 1. Sludge 7521 2260, 1720 μg/L 2. Wastewater treatment sludge from electroplating 3010/7520 130, 140 mg/L 1. Wastewater treatment sludge from electroplating 7196 18, 19 μg/L >>>> See the accompanying hardcopy volume for non-machine-readable data that appears at this point. <<<<

PART 270-EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

1. The authority citation for part 270 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912, 6924, 6925, 6927, 6939, and 6974.

Subpart D-Changes to Permit

2. The entry in appendix I to § 270.42, B.1.b., is revised to read as follows:

§ 270.42 Permit modification at the request of the permittee. *

Appendix I to Section 270.42.-Classification of Permit Modification

Modification Class

* * * * *

B. General Facility Standards

1. * * *

b. To incorporate changes associated with F039 (multisource leachate) sampling or analysis methods.

* * * * * *

¹Class 1 modifications requiring prior Agency approval.

[FR Doc. 91-2234 Filed 1-30-91; 8:45 am] BILLING CODE 6560-50-M